STRONG DRINK;

What it is, and what it does.

BY T. S. BROWN.

"Intemperance is the voluntary extinction of reason."
—*Channing.*

O God, that men should put an enemy in their mouths to steal away their brains."—*Othello.*

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PREFACE.

To the Business Men of Canada:—

Though past eighty years of age, and with excuse for indolence in complete loss of sight, I belong to the active class, mercantile and mechanic, whose united energies move the product of the world's industries and make the interchanges; and I think I cannot render a better service to the successors of those with whom I commenced active life two-thirds of a century ago, than by preparing this little book for publication.

The appalling magnitude of evil consequent upon the common use of a now known poison in daily drink, and the earnestness of temperance reformers have during the past twenty years forced observation, investigation, analysis and discoveries upon chemistry and science now spread through a multitude of speeches, reports, essays and volumes, exhibiting as in a mirror the laws of life, and I have endeavoured to compress what Joseph Hume would

have called the "tottle (total) of the whole" to dimensions that a business-man may read with understanding of all he cares to know, without encroaching too much on time and thought required for his own affairs which are always pressing.

T. S. BROWN.*

Montreal, Jan., 1884.

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* NOTE.—Lest my commercial friends may suppose I have become learned, let me say that any one "read up" in temperance literature will observe that all contained in these pages, "scientific" or "professional," is merely a transcript ("chemistry" excepted) of words and phrases from Brande, Ure, Richardson, Hargreaves, Lees, Thompson, Liebig, Carpenter, Playfair, Lallemand, Perrin, Duroy and other physiologists and chemists of such high repute and authority that no one contradicts them. It is all "endorsed paper" and may be considered "gilt-edged."

STRONG DRINK;

WHAT IT IS, AND WHAT IT DOES.

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FERMENTATION.

Fermentation is the spontaneous decomposition of the proximate principles of organic substances, under the joint influence of warmth, air and moisture, and the re-union of their elements forming new compounds.

When certain vegetable substances are dissolved in water, or where the juice of certain fruits is pressed out and subjected in open air to a due temperature (between 65° and 85° F), they undergo a series of changes which terminate in the production of alcohol or spirit, that exists nowhere in nature, but is generated by this process.

These changes constitute the phenomena of vinous fermentation.

All grain consumed by man, much of the fruit and many roots and plants contain saccharine matter or sugar, which in this process of fermentation is converted into alcohol and remains diffused throughout the mass of liquid.

Alcohol—nowhere the product of nature—cannot pre-exist in sugar, but is the result of the combina-

tion of other elements with sugar, during the process, when the sugar disappears and carbonic acid is more or less evolved.

Fermentation in its full acceptation is that putrefaction and decay through which organic substances are destroyed or disappear, to be separated into the various atoms of their primal formation, to be again converted into the same or other forms.

The juice of the grape called "must," when exposed in open vessels to a temperature of about 70°, becomes turbid and frothy, hence the word fermentation from the Latin "*ferveo*, I boil." After a time carbonic acid gas escapes into the air, scum collects upon the surface and a sediment is deposited.

The liquid which had grown warm gradually cools and clears, loses its sweet taste and is changed into wine, containing throughout an admixture of alcohol from 2 to 17 p.c., according to the richness of the grape. If not arrested here by the hand of man, fermentation would go on till the wine became vinegar, the vinegar mould, finishing in complete putrefaction and disappearance.

During the first process of fermentation, the carbonic acid, scum and sediment being separated, there remains only water and alcohol, with some colouring and flavouring matter, contained in the original substance. This is called wine, if produced from grapes, or cider if from apples.

Beer and ale brewing, through which alcohol is

originated from the sugar of the malt, natural and produced, is only fermentation by an elaborate use of various artificial and mechanical appliances to effect the same end with uniformity and certainty of result and economy of material, essential in carrying out trades of great magnitude.

The formation of Alcohol means the destruction of food. (See Note.) By an inexorable law of nature, there can be no nutrition in fermented liquors, because every alimentary principle has been annihilated through their process of manufacture. If food for animals is found in the grains and wash of breweries and distilleries, it is because it is so used before it has reached the final stage of decomposition, which would render it utterly valueless. Minute investigation has proved that in the best beer only one part in 1666 can be considered food, and that a person must drink 8 quarts of beer daily for twelve months to obtain the aliment contained in a 5 lb. loaf of bread, and that there is more real nutriment in as much flour as can be held on the point of a table knife than is contained in 8 quarts of beer.

The value or character of wine as a nutriment

Note.—When the value of corn is as at present 60c. per bushel, the value of the grain for feeding cattle after it has undergone the partial process of fermentation, which extracts the spirit, is 10c. per bushel, or one-sixth. Thus by cash estimate in every 100 bushels used in distilling, the value of 17 remains as food, but 83 are destroyed.

fares no better when analyzed. If a pint of beer or 18 oz. be put into a retort and subjected to a gentle heat, a little less than an ounce of alcohol will be driven off. By increasing the heat, about 15 oz. of water may be evaporated, leaving at the bottom of the retort about one ounce of black gummy extract of hops and barley that no one would take as food. This is not guess-work, but positive demonstration, that a man in taking a pint of beer swallows about 15 oz. water, less than 1 oz. alcohol and 1 oz. mud. With wine the alcohol would be the same, the water the same, and the mud no better.

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DISTILLATION.

Distillation, which creates nothing, but separates into their distinct elements different substances combined in any liquid compound, is simply a process of evaporation and condensation, exemplified in the rising of vapor from the earth during the day, to cool in the air and show itself at night in the form of water or dew, or the steam from any heated fluid cooling again and liquefying upon a cool surface placed above it.

But this was unnoticed or unapplied for any practical purpose until put to use by an Arabian

Chemist* in Spain, during what is termed the Moorish occupation, about seven hundred years ago. Up to that time from the days of Noah wine had been regarded as a special liquor distinct from all others. Bacchus, the presumed introducer of the grape into Europe, was deified by the Greeks as the inventor of wine, and worshipped as such throughout the days of Grecian mythology. Poets, Greek and Roman, and their followers had extolled this nectar of the gods as something divine, till the discovery of the Chemist Albucasis proved to the world that this transcendant liquid was nothing but alcohol and water, two ingredients which any one could combine in any way he pleased with any other ingredients to make any beverage agreeable and enticing to the human palate.

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*Note.—The long life of popular error is exemplified in the continued impression that the Arabs, immediately after the conquest of the first Caliphs, became suddenly learned and scientific, when a moment's reflection tells us that these conquests covered many or most of the then known seats of learning, and that while the rabble accepted the simple formula, "One God and one Prophet," to join the armies for plunder, the educated accepted it for safety, and all nationalities were merged into the "Arabian," who, receiving new lights from the East, transmitted them to the West. The Syrians, Egyptians and other Northern Africans, who had invaded Spain with the Arab chiefs, were called Moors because they crossed from Morocco.

Order reigned in Spain under the sword, and Eastern civilization revived the Roman civilization, that had for centuries been trodden down by barbarians from the North.

We might be astonished at the stupidity and ignorance of mankind in so plain a matter, for hundreds of years before the discovery of distillation, were it not surpassed by the more inexplicable ignorance that has continued down to our own day.

The new process remained a hidden mystery in Spain, as something supernatural that created an elixir of life, to supersede or change all things known in medicine. The new fluid being then obtained from wine only was called "Spirit of Wine," which name has been continued for all "alcohol," a term that came into use in the 17th century, after it had been produced from grain by the Genoese, who kept secret the method of manufacture and made a profitable trade in the sale.

It was used in drink as early as the 13th century under the name of "*aqua vitæ*," and is frequently mentioned by Shakespeare in his day, about which time the cultivation of the sugar-cane in the West Indies, led to the distillation of rum and increased the use of spirits in Europe.

In France, brandy was distilled from wine at an early date. Gin from grain, in Holland, many years after. In Northern Europe distillation came later still. New England rum was first distilled from molasses at Boston in 1720. Our present deluge of whiskey from the West commenced in Western Pennsylvania in 1779.

The little vials of the "Elixir of Life" have

grown in seven centuries into a torrent of death. The whole understanding of the production of the alcohol of drink is this:—Wherever two fluids of different weights and boiling-points are combined together and exposed to heat the more sensitive will evaporate first. Water boils at a temperature of 212°; alcohol at 172°; consequently if the whole be exposed to heat not much exceeding 172° the alcohol, whatever may be its proportion in the entire quantity, will fly off into vapor into a condenser that cools and passes it off as liquid, while the water remains undisturbed.

By this simple process any liquor, containing nothing but alcohol and water, may be separated into the two distinct elements, or if there be other elements in the same composition, they may be separated from both, or by fractional distillation the liquid may be broken up into its distinct elements, whatever their number or proportion.

Thus by the simple use of the retort and the alembic, the exact constituents of any liquid can be determined positively and exactly, and what we drink be made as visible as what we wear.

The American high-wines of commerce are whiskey, from which the water is so far separated as to leave nearly pure alcohol, from which by further rectification a pure colorless and tasteless spirit is produced, ready, when drugged and diluted, for the manufacture of any drink that trade may demand,

whatever its name or supposed origin.

The knowledge of distillation was one of those great truths which are revealed from time to time for the benefit of man when required by the necessities of other developments. The discovery of distillation from wine, which puts into body or form or sets free from watery surroundings an agent of greatest potency, soon led to progressive discoveries of transcendant value, which cannot be over-estimated, to chemistry and mankind, in its aggressive power to convert substances, in themselves of small importance or dormant, to purposes of the greatest utility in manufactures, arts and medicine.

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ALCOHOL.

There are many alcohols, and many more to be discovered. Those best known are a group of six, alike in the elements of their composition, but differing slightly in the proportions. The first containing 1 atomic part of carbon to 4 atoms of hydrogen and 1 of oxygen, and proceeding in an ascending scale to 6 atoms carbon, with 14 atoms hydrogen, each being in combination with 1 atomic part of oxygen.

The first, Methylic or Wood Spirit, (sp. gr. 814; boiling point, 140° F.), is a product of the distillation of wood, discovered about 70 years ago, and

for its comparative cheapness is used in arts and manufactures and in burning fluids. What is prepared for manufactures may be used in drink, and the "horrid stuff" may be a ready resource for people anxious to get drunk where nothing else is to be had, of which thirsty travellers have found abundant evidence both in the State of Maine and our North-West.

The second, Ethylic Alcohol, (sp. gr. 792; boiling point, 172°), is a product of fermentation and an educt of distillation. It is the Bacchus of modern worship, or more graphically speaking the Juggernaut, for it only excites the ardor of its followers to crush them. Leaving the other four to the chemists, this, the active principle of all intoxicating drinks, is, like the others, the only known intoxicant that affects all animals alike. Its ordinary sp. gr. is 830, and much labor is saved by not extracting water beyond this point. It is precisely the same combination whether mixed with the humblest or the most potent of drinks, whether beer, wine, (in its endless varieties), gin, whiskey, rum, brandy, or absinthe. However combined and disguised it is in one and all of them, a certain percentage varying from 4 to nearly 100 p.c., of a liquor accurately weighed and measured, and known to contain 2 parts carbon, 6 parts hydrogen, and 1 part oxygen, which the drinker must swallow, whatever the trade name of the compound, and

innocent or deadly in accordance with the quantity irrespective of the surroundings in which it is taken.

The name of wine or beer as nutrition is a sad delusion. That a compound of carbon, hydrogen and oxygen cannot, when diffused in such combination, be food for life and a support to strength is as plain and positive to the physiologist as that there is no food property in a powdered brick-bat.

But the world had not awakened to the fact until proclaimed a few years ago, by a certificate signed by hundreds of names, highest in the medical profession, and it continues to overlook another fact, namely that a poison is defined to be anything that taken into the body of a living animal causes decay or destruction of its organism and consequent death, and demonstration proves fully that this is the character of Alcohol. Like cantharides and its class it is an irritant, like opium and its class it becomes a sedative, thus combining like strychnine and its class all the properties of all poisons. Were it argued against this that it requires a spoonful to kill a child or three-half-pints to kill a man, the reply is, that if bulk be an objection, there would be no acknowledged poison, except what comes from the sting of a bee or the tooth of a serpent. Solomon said truly of wine "It biteth like a serpent and stingeth like an adder."

About forty years ago a German chemist dis-

covered that pure alcohol acted upon by dry chlorine gas, and purified by sulphuric acid and lime, produced, by the addition of water, a solid, resembling coarse salt, known as chloral hydrate, which is a poison so potent that less than one-fourth of an ounce, which may be condensed from the 12 oz. of alcohol in a bottle of brandy, is sufficient to kill a man. Who can to-day limit the increased knowledge of the effects of alcohol upon weak humanity to which this discovery, but of yesterday, may lead?

The word alcohol should be a terror to mankind. Existing nowhere in nature, it emerges into life by the destruction of all that gave it birth, and, seizing upon the human race, continues a despoiler and murderer to the end.

The beneficent gifts to mankind in the discovery of alcohol was an all-potent agent to disintegrate and dissolve gums, resins or essential oils and other substances unassailable by water, and produce certain acids before unknown. It does what water cannot do. It separates what water holds together, and the very qualities that make it a right arm to the chemist, by its all-powerful action upon inorganic substances, are its condemnation for agencies in the living body, where it is brought into contact with the fluids and semi-solids that compose the inner structure and sustain the life of man.

PHYSIOLOGY.

Man, the most perfect of all mechanisms, so fearfully and wonderfully made, so strong in its entirety that it can perform all things, and so weak in its parts that a slight derangement of one may impede the work of all, consists as a structure of solid, liquid and gaseous substances, so intimately united as to be only separable by artificial means. All solid particles are penetrated by liquid and these contain gaseous in solution.

The liquids of the human body constitute about four-fifths of its entire weight, and exist in various forms of chemical solution, pervading every part.

All the components of the body may be reduced to fifteen elementary constituents, which are common to all organisms, such as hydrogen, oxygen, nitrogen, carbon and eleven others. These compose the tissues that enter into the formation of the bones, nerves and cartileges, and their divisions, minute and innumerable, make up the whole framework of man.

All action tends to the destruction, disintegration or using up of these tissues, which are renewed for strength and usefulness by the office of nutrition. All elements possessed of the affinities that effect this nutrition are food, all that do not possess them are for this purpose useless, and all that contain disturbing elements are hurtful. Heat or warmth

it a primal condition of animal life, for which food is the fuel and sustainer.

The blood, composed of nearly four-fifths water, in which float corpuscles, visible by the microscope, and from which is derived the materials of life and growth, is renewed by the food taken into the stomach, and circulated through all parts of the body, partly by the impulsion of a central engine, the heart, in regular pulsations, and partly by a power residing in the capillaries or minute blood vessels.

The vessels, through which blood is forced from the heart, called arteries, is at first a large tube or trunk that branches off like a tree into twigs, thus dividing into smaller tubes, till so minute as only to be seen by the aid of the microscope. They spread throughout every part of the body, and discharge by the "capillaries" into the veins, through which the blood returns to the heart by the opposite movement, that is from the branches to and through a trunk, thus completing what is called the circulation of the blood, which cannot be interrupted or impeded without disorganization or stoppage of life.

The blood in the body of a man is in weight about 30 lbs., or about 3 gallons, which circulates through the body by about 100,000 beats of the hearts in 24 hours. The average quantity is about 10 lbs. a minute, or 600 lbs. an hour, or 14,400 lbs. in 24 hours.

This force, in mechanical computation, is equal to lifting 115 tons one foot per hour.

The entire human structure contains 70 p. c. of water; the blood contains 79 p.c.; the brain 80 p.c., and the muscles average about 75 p.c. The pulsations of the heart in a full-grown healthy man average about 73 per minute, and every increase or decrease of the usual rate indicates derangement or something unnatural. The natural heat of man is 98° F., easily ascertained by placing a thermometer under the tongue, and any considerable disturbance which would make it to rise or fall many degrees from this natural standard will put life in jeopardy. It is nearly alike in all men, in all climates, and at all seasons.

The steam-engine is a ponderous combination of legs and arms, joints, connections and valves, made to perform the work of many men. Heat applied to water produces steam, which carried through an artery or pipe to the heart or cylinder, drives the force that moves the machine. Bad or unsuitable fuel, or bad elements in the water or lubricating oil, would, by corrosion, soot, ashes or cinders, impede or stop the movements, or by friction so weaken some part as to destroy the whole.

In like manner when certain unfit elements are taken into that storehouse of the body, called the stomach, they pass into the blood as a vagabond, uniting with nothing there, but repelled by all till

chased away by nature's police; like lightning passing through a workshop, they leave no trace except in some destruction, damage or dross.

The human machine, like the mechanical, requires an engineer, competent to procure and apply all that is requisite for maintaining healthy action, and the most competent must be the owner. "Know thyself," said the Grecian sage, referring to the intellect. "Know thyself," says the physiologist, in all things that concern the body in its material existence.

> "Know well thyself . . . .
> The only study of mankind is man,"

says the poet.

The nerves, so quickly agitated by any abnormal excitement or derangement, are a ramification of delicate cords, tubes and cells passing throughout the system in straight lines or interwoven, and serve to conduct impressions from the external world to the nervous centres, or to transmit volitions from these centres to the structure subject to their control, and especially to the muscular system. If these be thrown into commotion by a cup of strong tea, what must result from alcohol, one of the most powerful of irritants.

The animal body is the only machine that lubricates itself, so that its component parts may run smoothly, noiselessly and painlessly. Men do not apply aqua-fortis to watch movements. When the

pure oil of nature is vitiated by alcohol, or the minute blood channels are obstructed, then comes corroding, stiffness and friction, in cramps and rheumatism, that, after tormenting a man for life, descend to his innocent progeny. Horace Walpole said that it was too bad that he should bear the excruciating pains of gout and other infirmities because his father had taken pleasure in the excess of drink that occasioned them.

Still more horrible, millions of women, guiltless of irregularities, endure lives of torment in bodily infirmities, sometimes ending in death in early girlhood, and sometimes extending over protracted years, caused by the irregularities of their parentage fulfilling the Divine decree which carries the sins of the fathers down to the third and fourth generation.

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CHEMISTRY.

All bodies known to us, whether animal, vegetable or mineral, have been studied by chemists, and shown to be either elements, such as iron, gold, sulphur and charcoal, or compounds of two or more elements, a name by which they distinguish such bodies as cannot be shown to be compound.

Water, flint, marble and sugar are examples of compounds, and, like all others, are made up of

certain invariable and definite proportions of different elements into which they can be resolved, and which can be made directly or indirectly to re-unite and form these compound bodies. Thus the chemist can separate water into two gases, oxygen and hydrogen, flint into oxygen and silicon, marble into oxygen, carbon and a metal named calcium. and sugar into oxygen, hydrogen and carbon. The first three of these compounds he can reproduce from their elements by processes well known to him, while growing plants get carbon, hydrogen and oxygen from air and water and convert it by other chemical processes into sugar, starch and other matter, some of which the chemist has been able to make in his laboratory.

The studies of the chemist, while they have established the elementary nature of many bodies, have shown many others to be compound, and we now know more than sixty substances believed to be elements, of which however the greater number are rare, and seem to play but a subordinate part in the world. Four of these elements make up the chief part of all vegetable and animal form, constitute also the air we breathe and the water we drink. Of these hydrogen, oxygen and nitrogen are colorless, invisible gases, hydrogen being the lightest known, about 1300 times lighter than common air. Oxygen is about 700 times lighter than water, and when united with one-eighth its weight of hydrogen forms water.

Nitrogen, or azote, is somewhat lighter than oxygen, and when simply mixed with this in the proportion of four volumes to one gives the air we breathe. It is the oxygen in the air which enables it to support animal life and combustion.

The burning of wood and coal is the combination of the elements of these bodies with the oxygen of the atmosphere. Anthracite coke and charcoal are nearly pure carbon, (a term signifying a combustible base, of which the diamond is the purest form,) and yield, when united with oxygen, carbonic acid gas, a small portion of which is always found in the air, and is essential to the food of plants.

Sugar, starch, wood and fats consist of carbon combined with the elements of water, while flesh, blood and gelatine contain besides these a considerable proportion of nitrogen. Thus the four elements, oxygen, hydrogen, carbon and nitrogen, with insignificant amounts of some other elements, make up all the structure of plants and animals, with the exception of bones and shells, which consist chiefly of compounds of lime with oxyds of carbon and phosphorus. The function of plants is to convert the mineral elements in the air or water into compounds which serve for the nourishment of the animal, and enter into their composition. Both plants and animals are furnished with organs by which they are placed in relation with the external world. They are therefore spoken of as organisms,

and the substances which make up their tissue are generally designated as organic, as contra-distinguished from mineral bodies.

The foregoing has been kindly written for me by a friend standing in the foremost ranks of science, and shows why and how the chemist knows with precision what elements are and what the result of their combinations, which, though dark to the average reader, are as plain to him as anything material in common use that can be seen and handled, weighed or measured, and consequently when the chemist speaks of the qualities or effects of any combination of elements, he speaks with positive knowledge and with unerring principles for his guides.

It may be here observed that the chemist cannot discern or say before-hand why alcohol may not be as fit for the human body as sugar or fat, which consist of the same elements, because the relations of any or all of these substances to the animal organism are established by physiological and not by purely chemical considerations.

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FOOD.

Proper food must contain organic matter in a form capable of being assimilated by the digestive organs, and must include all the elements of the

body, combined with nothing deleterious or poisonous.

The waste by time and its activities, or wear and tear of tissue, a term applied to the various textures of which the organs of the body are composed, involving the destruction of life in individual atoms, and the necessity of maintaining the temperature of the body, all require the constant introduction of fresh organic matter to supply this waste, and the natural sensations of hunger and thirst tell us when solid or liquid food is required. Any drink that provokes unnatural thirst, or craving for more, must be dreaded. A sailor said, "water must be the true drink, because nothing tastes so good when we are thirsty and nothing so bad when we are not."

All substances susceptible of digestion and assimilation may come under the denomination of food, but the proximate principles of organic bodies, on which their nutritive powers depend, are comparatively few. Hence, though the articles of food for the support of animal life are infinitely varied in form, their sustaining power in the support of strength and life may be referred to certain substances capable of being separated and identified, weighed and valued, by chemical analysis, making as plain and positive what is and what is not food as that sawdust is not sugar.

Experiment, that test of truth, tells the chemist

that one passes through the body undigested and the other does not, and analysis of their composition tells him that the inexorable law of nature forbids that it should be otherwise.

Milk, the most important of all foods, though secreted by an animal, partakes also of the nature of vegetable food, and presents a perfect analogy to that combination of vegetable and animal matter most congenial for nutrition, and consequently as nature's production, especially for the young, who cannot choose for themselves, may be adopted as a food standard.

Its composition is 88 parts water in 100, and 12 solid parts in proper proportions of caseine or cheese, a fatty substance or butter, sugar of milk and salts. In estimating the proportion of liquid to solid in food, we must always remember that what we call solid may often contain sufficient liquid for its digestion.

When alcohol, which is neither food nor fuel, is intruded into a stomach, prepared for the reception of food that maintains the tissues, and also furnishes the fuel that keeps up the natural warmth, like a useless vagabond seeking companionship among workers, there is an excitement, causing increased action of the heart and capillaries that pushes and draws blood more rapidly to the extremities and creates a feeling of warmth, but in reality this is only a throwing off of heat existing in the centres

to that conductor of feeling, the skin, or from where it is greatest to where it is least, like the stirring of coals in the embers, which creates sensible heat while destroying its source. This may raise the temperature of the body from ½° to 1½° above natural standard, which rapidly subsides to 1° or 2° below, if the intrusion of more alcohol continues the expansion.

If whiskey produced sustained internal warmth, we should not pick up frozen drunkards during the winter in our streets. When a man is found frozen to death with an empty whiskey bottle in his pocket, we may hold that natural heat might have enabled him to reach a place of safety had he poured the liquid into the snow instead of into his stomach.

The end of food is the generation of force. Alcohol, being neither food nor fuel, can create no force. It only stimulates action, which is not strength, but the expenditure of strength. When taken to increase the energy of the tired, it adds no force, but only draws out and uses up what remains in the organism; like the lash on the tired horse, it excites immediate action at the cost of greater after prostration.

A man, with capital safely invested and living upon the interest, has a happy provision for life, but if not content with the interest he draws upon the capital, poverty must ensue. Food provides a

necessary store of strength for labor, forcing an expenditure by alcohol is plainly using up capital and interest. The bankrupt in purse may rise again, but the bankrupt in body is down forever.

What nature has given us for food contains water, salt, albumen, caseine and fibrine, in which nitrogen, sulphur and phosphorus are in combination.

That which does nothing to build up, but only weakens or destroys that which is built, must be a scourge.

We have existed from the beginning in a sea of knowledge non-observant or indifferent to its wonders, till in our own immediate time, when, after more than a century and a half teaching of modern chemistry, there is an illumination that wakens us to all the realities.

Some years ago I asked a Jesuit missionary on Lake Superior what a party of his wild Indians would see if he brought them to Montreal. His quick reply was "nothing but the meat market." In the struggle for existence we have, like the Indians, been occupied with the necessities of immediate concernment, to be seized upon as presented without further enquiry; but daylight has come and we see, not only things but the composition and necessities of things, and the reason why they cannot be otherwise than what they are, and in sinning against Nature sin against knowledge.

WHAT LIQUORS ARE.

Brandy, rum, gin and whiskey are called "spirits," and their commercial "proof" is 50 p.c., that is half alcohol and half water.

Brandy, if reality agreed with presumption, would be a pure white liquor of pleasant flavor, distilled from wine in the district of Cognac, Dept. of Charente, in France, but usually colored before sale. The wines of that district are mostly converted into brandy, and all imported from it has been deemed a real and pure article, but, even in days of honesty, the annual production of 6000 butts somehow became 15,000 butts of the best brandy before exportation, and now, from the badness or deficiency of the grape crop, the demand is met by distillation of corn-spirit, flavored with wine or wine refuse, to such an extent among all the manufacturers, and with so close an imitation, that in supplying an order from America the agent in France would not know exactly what he shipped.

Coarse brandy is also distilled wherever wine is made, usually for home consumption. In Russia it is distilled from potatoes, and the excise upon it is one of the largest items of revenue. In Great Britain and America it is largely manufactured from

high-wines and water, so nicely flavored as to deceive many so-called judges.

Rum is an ardent spirit, obtained by distillation from the fermented skimmings of sugar-boiling, the drainings of the sugar-pots and hogsheads or molasses, the washings of bottles and other vessels, together with sufficient cane-juice or wort, prepared by washing the crude cane, to give it necessary flavor.

Up to about a half-century ago, being very cheap and easily procured, it was a common drink of people in the Atlantic States and Canada, and so much deemed a necessity that, when in 1790 the new settlers on the Niagara frontier were starving for bread, Goverument sent them up by the troublesome navigation of those times 100 barrels of rum. In this Province the consumption was great, and every puncheon purchased from the importer usually became two before reaching the consumer.

Gin is understood to be a grain-spirit, distilled from rye and juniper berries in Holland, their being nearly 200 distilleries in Schiedam alone. "British Gin" 50 years ago was a vile compound, with the odor and taste of spirits of turpentine, but by "modern improvements," in the use of oils of almonds. cassia, nutmeg, lemon, juniper, coriander and carraway, essences of orris-root and cardamoms, orange flower water, sugar, etc., it has become a favorite beverage of the multitude.

Whiskey is the grain-spirit, that is, all direct dis-

tillation from fermented grain, of which, in America, fourth-fifths is Indian corn.* (See Note.) To reduce bulk and weight, distillation may be continued until it becomes nearly alcohol, known as high-wines, death to the man who should drink three half-pints, but reducible by water to any strength required.

"Old Rye" may be any whiskey over a year old, slightly colored and flavored, and "Bourbon" may be nothing else. All these distilled liquors may be further distilled and rectified to produce a pure, colorless and tasteless alcohol for purposes in medi-

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* NOTE.—American whiskey is made of four-fifths Indian corn and one-fifth a mixture of rye, malt and oats, in about the proportion of 4-8, 3-8 and 1-8 for the rye, malt and oats to make the other fifth; that is, in 100 lbs., there are 80 lbs. Indian corn, 10 lbs. rye, 7½ malt, and 2½ oats.

The proof gallon, or taxable gallon, in the United States is 50 p.c. alcohol and 50 p.c. water. This is called proof 100.

The common whiskey of trade is distilled up to any point between this 100 and 191 proof, and is put on the market as alcohol at 188 proof, or, if Bourbon or rye whiskey, at about 101 proof.

In the United States, high-wine is the raw whiskey run at about 150 to 160 proof, or, as it is often called, 50 to 60 over proof. Until late years (within 15 years) all common whiskey distilleries made high-wines, and dealers, called rectifiers, made these high-wines into alcohol by a second distillation, and into spirits by rectification through powdered charcoal and then another distillation. Now all this is done in the distilleries, and the tax is paid on the finished product. There are four gallons of whiskey extracted from a bushel of corn, the bushel weighing 56 lbs. Some now claim to get 18 qts. from a bushel.

cine, in the arts, and in the imitation of intoxicants of every name.

Beer, ales and porters are fermented liquors, produced through the process termed brewing. Grain, usually barley, soaked in water till it germinates and then dried in a kiln, which evolves the saccharine principle, is called malt, this, combined with water, hops and yeast, becomes "wort," and subjected to heat, with some changes of temperature, it ferments, and in the end a clear liquid is drawn off. This is the plain story, but there are mysteries, some contingency may interfere to spoil the brewing, or there may be trouble after it gets into the casks, which may require artificial remedies, that are found in three poisons, cocculus-indicus, strychnine and opium, and many drugs and condiments not in themselves hurtful. All fermented drinks are liable to sickness, and at times require medicine.

Primitive wine was the naturally fermented juice of the grape, and such it continues in the poorer descriptions, consumed in wine-producing countries, where the wine of the peasant and poor farmer, who are compelled to sell their fruit, is a mere washing from skins and stems. If the lower descriptions of wine are consumed in their natural state, because no mixture can make them cheaper, the highest descriptions in France are preserved nearly in their natural state, because any mixture would destroy

the qualities that make them saleable at the highest prices; but the great bulk of grape-juice, subjected to the competition of trade, becomes a manufactured article to suit various markets at prices to suit consumers.

There are hundreds of varieties of grapes, all affected by variety of season, and the excellence of the juice for wine may depend, not so much upon the precise species of grape, as upon some peculiarity in soil or exposure to the sun.

Thus there are, in the wine countries, vineyards here and there of small extent, renowned for the real or fancied quality of their grapes. For the highest description of wine they are hand-picked when a little over-ripe, and cared for in many ways to produce a wine, classified at various prices according to its presumed merit, to be purchased only by the most opulent. Lower grades are produced from inferior grapes on the same stems. The Grand Duke Constantine about 20 years ago purchased in Bordeaux three casks of Sauterne of the vintage of 1846 at $25 per gallon, and three casks discovered afterwards sold at auction at $50 per gallon.

Port, the old favorite of Englishmen, has been so long medicated between the vineyard in Portugal and the dinner-table, that they would not use the real article if they got it. Sherry, manufactured by a long process from the promiscous grapes of a

large district in Spain, is the farthest removed from natural wine of all the high-priced.

The wine-trade of France is a matter-of-fact business. The "crop," a few years ago, equalled in value the cotton crop of the United States, and science makes the most of it.

A few small vineyards have great names Since the Revolution, vast areas, not particularly suited to their growth, have been planted with vines, and a large portion of the grape-juice from the fruit is manufactured to resemble in supposed quality and in name the product of renowned vineyards.

In France these names, except with some very fine wines, are little more than "trade-marks," while abroad they are assumed to be realities.

Bad seasons and the ravages of an insect have of late years greatly diminished the "wine-crop;" in one of the years not a single grape fit for wine was found in the Champagne country, which, though sad for the cultivator, has been rather gladdening to science and commerce, for coarse wines from Italy, Spain and California are now imported, to be made over and re-shipped as the most delicious of France.

Thus wine, which popular error has assumed to be a positive liquor like rum, is any beverage, not spirits, that is a composition of varities so endless that no person knows what he is drinking when taking it, beyond the sensation of excitement pro-

duced by the alcohol it contains. "Spurious" wines are only to be condemned for being coarse, vulgar and wretched imitations of good imitations. In the cookery of wine, as in all cookery, there are good cooks and bad cooks.

A study of the liquor question ends with the comforting assurance that, though all the grape-vines and sugar-cane of the world disappeared, so long as the Indian corn crop of the West continues to provide for the alcohol, water remains abundant and chemicals are at hand, there will be no falling off in the supply of strong drink of every name and variety.* (See Note.)

The good woman who gives her weakly child a glass of port wine to do it good, should know that she has simply administered a quantity of alcohol and water, differing little from the brandy and water that is killing her husband.

The medical profession has a terrible load of offence to cast for its past practices and must claim

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*Note.—There is a gallon of alcohol in a gallon and an eighth of laudanum, two gallons brandy, four gallons strong wine and eight gallons light wine, or 16 gallons beer. What may be called a fair drink of spirits, and rather strong for weak stomachs, is a wine-glass of brandy in a tumbler of water, which, in measurement, is equivalent to one ounce alcohol to seven of water; the same quantity is imbibed in taking two glasses of strong wine, four glasses light wine or four tumblers of beer, but the intoxicating effects may differ in various liquors or in different individuals. Champagne, though a light wine, is very intoxicating.

forgiveness on the plea of weak humanity. People are continually sending for the physician when really there is little the matter with them. He must do something, liquors are always at hand, they produce exhilaration or rousing up of faculty, and patients like them.* (See Note.)

The consumer usually finds spirits diluted by water, which increases the profit, and wines strengthened by alcohol, which improves their attraction. Port and Sherry are apt to contain 25 p.c., and strong Spanish wines may exceed this proportion.

If it be asked how alcohol, which is only water with a little carbon added, can be so dangerous, the reply is that elements perfectly innocent in one combination are entirely changed by a combination slightly different. Laudanum is only alcohol with a tenth part of opium added, lye is only water with a little potash added.† (See Note.)

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*Note.—The relative alcoholic strength or percentage of different liquors are thus given by Brande, and may be kept in mind by people when taking a drink:—Brandy, 53 p.c.; Rum, 53 p.c.; Gin, 51 p.c.; Whiskey, 54 p.c.; Beer, 6 p.c.; Porter, 4 p.c.; Ale, 8 p.c.; Cider, 7 p.c.; Port, 23 p.c.; Sherry, 19 p.c. Maderia, 23 p.c.; Marsala, 25 p.c.; Sauterne, 14 p.c.; Bordeaux, 10–15 p.c.; Rhine Wines, 7–14 p.c.; Champagne, 11–13 p.c; Tokay, 10 p.c.; Burgundy, 11–16 p.c.

†Note.—The British gallon is a measure that will contain exactly 10 lbs. water, or 160 ozs. A gallon of brandy will contain 64 ozs. of alcohol, a gallon of alcohol weighing 8 lbs. A gallon of

EFFECTS OF ALCOHOL ON THE BODY.

The laws of the human organism are fixed, determined and inexorable, except in certain modifications. No man ever was or ever will be precisely the same being five minutes after he has swallowed even an ounce of alcohol as he was five minutes before. The first effect is the cheat of an apparent increase in warmth, which is only the result of a more rapid radiation of heat from the centres to the extremities, causing a flush on the cheek or a fevered state of the body or extremities. The tongue is aroused to increased utterances, an augmented action in the muscles, especially of the face and arms ensues. If the influence be continued, the alcohol acts upon the spinal cord. The control of some of the muscles is lost, felt first in the lower limbs, as seen by the staggering, uncertain steps. Reason now gives way, and the animal instincts assume the

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strong wine, 32 ozs. alcohol; of light wine, 16 ozs.; of beer, 8 ozs. A common table tumbler contains 8 ozs.; a wine-glass 2 ozs., an ounce being two large tablespoonsful. A wine-glass would consequently contain of alcohol in brandy, 1 oz.; in strong wine, ½ oz.; light wine, ¼ oz.; beer, ¼ oz.; these measurements, though not fractionally exact, are near enough for common calculation to show what quantity of alcohol is taken in each and every drink, and be it remembered that the damage of drink is in the strength of the draught, and not in the quantity. Absinthe is more damaging than beer, because a wine-glass of the one contains the alcohol in 5 tumblers of the other.

mastery. The coward becomes more craven, or is possessed for the moment by an unequal courage, the bully more pugnacious, the daring more reckless, and the cruel more brutal. Man is reduced to the condition of a brute. At last comes utter prostration, and the mad revel ends in insensibility. The poison, at first irritant, is now sedative. All organic action is stopped except the breathing, the action of the heart and circulation of the blood, all of which being involuntary are, happily for him, beyond the control of his will.

The intrusion of alcohol had paralyzed the outposts of the nerves, and the force drawn into the nerve centres had driven the machinery of life too rapidly. The natural action of the heart became rapid, unsteady and violent beats, causing the blood to surge with increased force.

In all this there has been stimulation without nourishment; no power beyond the moment conferred on brain or muscle. Excitement that makes waste makes no return; momentary excitement provokes quick action that of itself leads to destruction. There is small promise for the manhood or staying powers of a young man who at an evening party must take a drink at the end of every dance.

A moderate drinker, in whatever disguise he takes his alcohol, consumes about two ounces per day, which is sufficient to increase the pulsations of the heart by four extra beats per minute, or 6,000

times in 24 hours, equal in mechanical power to raising 7 additional tons one foot. By a continuance of "moderation" to 8 ozs. in 24 hours, or something more than a drinker's usual allowance, the pulsations would be increased 17 per minute, or 25,488 in 24 hours, equal in mechanical force to raising 24 tons one foot per hour above the 115 raised by natural action.

It matters little how alcohol is put into the body to secure its absorption into the blood. Wherever the blood can carry it there it goes, and those parts of the body that hold the largest quantity of water keep it longest in combination. Unless largely diluted with water, it will cause coagulation of the fibrine of the fluid, and when continued leads to thickening of tissue. This danger increases with the strength of the potation, its repetition and duration.

The action of alcohol upon the blood being to coagulate certain elements in that fluid, prevents or retards its natural diffusion from the larger to the extreme and most minute channels of circulation, which may lead even in moderate drinkers to palsy or apoplexy. This obstruction of blood in the kidney and liver tends to varieties of disease. What to the moderate drinker may be the result of years, may become instantaneous where a man for some silly reason has swallowed straight off a large draught of strong spirit, causing immediate death,

the effect being that the blood in the heart is suddenly transformed into a semi-solid mass or clot, by which the circulation is absolutely stopped, and death becomes instantaneous. What the strong draught produces in a moment, moderate draughts may produce in the course of a few years.

All this is simple physiological, or under the circumstances, being morbid, may be considered pathological action, not perceptible to the eye, but as plain when examined by the chemist and morbid anatomist, as the coagulating of any liquid by pouring a given quantity of foreign fluid into it.

The motive power of the human frame is in the muscles, which are obedient to the will, and, when exhausted by working up to their natural force, is renewed and renovated by repose, as gathered by men before proceeding to labor or feats of strength. A stimulant like alcohol excites a short-lived, spasmodic energy, which, by using up a remaining force that should be retained in the organism, soon brings on fatigue of the muscular system, and injury to the frame and constitution.

The men that we see broken down are usually so broken because extra work has been forced out of them by stimulants. If, avoiding the stimulants, they had ceased working when directed by tired nature, they might have continued until old age in full possession of strength and activity Doubtless alcohol may and does rouse sleeping energies and

dormant faculties, but why submit to a kick or a lash when there is a self-command in the mental organism of a rational being always ready if called upon to order out the entire strength of man's mental and physical forces.

We can say of the gaunt, forlorn, meanly-clad wretch, "It was drink did it," and in quite too many cases we might say the same of many well-clad, well-fed and well-housed, afflicted with gout, rheumatism, stiff-joints, paralysis, palsy and various chronic ailments. The most terrible punishment that could be decreed for Prometheus was fastening to a rock with a vulture continually feeding upon his liver. Prometheus was soon released by Hercules, but no Hercules can release from torment the man who persists in feeding the vulture of alcohol upon the life-springs of his existence. Skin wounds from the bludgeon, the sword, or the pistol, which may be seen, cared for and cured, are trifles compared to internal contusions and lacerations that, unseen, carry on their continued work of ulcerations and disturbances while life endures.

The demon points the young to veteran tipplers as proof that drink is not killing; but these are only monuments of the slain; like old soldiers who remain standing long after all the comrades of their regiment have been swept away by fatigue, battle and exposure.

Excitable men may appear great drinkers, when

drinking little, while their phlegmatic companions, without showing the effects, are killing themselves by excess of quantity.

The cold, calculating commercial returns of some Life Insurance Companies, with profit only for their guide, who insure abstainers and non-abstainers in two categories, tell us that in insurable lives the death-rate of non-abstainers greatly exceeds that of abstainers to the extent of a large percentage in favor of the latter. This proof of a profitable percentage comes not from the exhortation of the pulpit or the rhetoric of the platform, but from the money guage of the ledger.

The carefully compiled weekly returns of the Registrar-General of England show that, while the average death-rate in towns and cities, including the heavy death-rate of children, is 23 per 1000, that of publicans and persons in the retail liquor-trade is 38 p.c. greater, or 138 deaths for every 100 deaths in all other occupations, for which there is no assignable reason except that having strong drink always at hand, they use it more continuously and render themselves more liable to a multitude of diseases directly attributable to alcohol.

It has been the ribald jest of dramsellers and their satellites that the opposition of the temperance movement to "conviviality" and the use of strong drink has not been because it did the people harm, but because it gave them pleasure. Disease,

decrepitude and death are a sad resort for jesters; but daily occupation hardens. Hamlet's digger at Ophelia's grave could "sing at gravedigging;" but we live in a calculating age that weighs consequences and compensations. The pleasures of drink are too dearly bought, and there are hundreds of ways in which pleasure may be had more cheaply.

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MODERATION.

The moderate use of alcohol, if not felt, is money wasted; if felt, it is doing harm. But what guage is there for moderation in the use of an article whose effects differ with every variation of atmosphere, every change in the organism of man, every degree of strength or weakness in the individual, and every variety in hundreds of compounds which he drinks without knowing the exact proportions of their composition.

Moderate loads in the end break down the cart-horse. In all indulgence there is a tendency to excess, and moderation oils the movements to that end in continued ratio of acceleration. There is no ascending scale to moderation, it is always downwards. Few men commence with weak brandy and water and moderate upwards to less brandy and more water, but generally downwards to more

brandy and less water. Two glasses of beer or wine are seldom reduced to one, but one is usually increased to two.

Moderation presumes abstinence at a given point, but practice proves that there is no fixed point after one glass is taken. "Truly," says the Spanish proverb, "it is the first glass that makes the man drunk."

A recent movement to introduce two pledges into temperance societies, one for moderation and the other for abstainers, is, in America, a step backward of half-a-century, and could not be mentioned with respect had not so many reverend and reasonable men, with singular short-sightedness to effects from causes, stumbled into it. There may be policy in courtesy to roving brigands, and our Indians deem it prudent to keep on good terms with the evil one, but rigid morality seldom compounds with the more elastic at 50 p.c. for companionship or joint account, nor do we hear that the Y. M. C. Association intends operating upon two lines, one the old standard and the other an accommodating pledge for those who are content with moderate honor in women, or moderate honesty in men, or moderate justice in courts of law.

He who takes the pledge of total abstinence promises honestly what he can perform. He who takes the pledge of moderation promises an uncertainty. With the most honest intentions, he is

amid snares and delusions which he can neither measure nor withstand.

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EFFECTS OF ALCOHOL ON THE MIND.

When the harmony of the cerebrum, that is the frontal or highest portion of the brain, is disturbed by a blow or fall, concussion is the result, with vertigo, unconsciousness, loss of memory, stupefaction, delirium or death, and precisely the same effects are produced by the shock of alcohol, with this difference, the shock from a heavy blow or fall may leave an outward and visible mark, but the shock from alcohol is inward and unseen.

The brain works actively under the first influence of alcohol, simply because an impulse is given to the movements of the blood. This may brighten the idea of a poet, and would be beneficial if the world were a romance, which is its "summum bonum," but it blunts the calculation of the mathematician and scatters the ideas of the business man, that require to be concentrated for necessary work in our world of realities.

A short but universal history of its progress may be read at many dinner-tables, where its pleasure is assumed to be a compensation for all its pain and injury to humanity. The company, men and

women, when first seated are composed, sedate and dignified. As the wine moves, features become relaxed, the eyes glisten, the tongue rattles, familiarity warms, common-places become funny, smiles become laughter, all are talkers and none hearers, and so the game goes on till some retire of themselves and some are "assisted." "Sad is the sight of such human happiness to him whose thought can pierce beyond the hour," and saddest of all is the "gushing" exhibition that weakens our respect for woman, often carried beyond the bounds of that reserve and modesty that make her adorable. A mere sentiment of delicacy should prevent girls from touching anything alcoholic in company.

At certain dinners and public celebrations, when drink runs fast and furious at no cost to the consumer, rational beings of the nineteenth century sink into barbaric idiocy, and we call it "jolly," but when a band of wild Indians meet to celebrate some event in the same manner, we call it "beastly," and can find no adjective hard enough to express our disgust. "O God," said Cassio, centuries ago, "that we should with joy, pleasure, revel and applause, transform ourselves into beasts." I have been kept awake all night by a drunken band of Indians jumping round a ring and shouting some Indian words or "song" that signified "American soldiers, I have killed plenty of them," a somewhat imprudent confession in a military camp, from

savages who came expressly to declare that they had never been hostile and never intended to be.

Alcohol, which in one portion of the human frame kills the body, in another kills the mind. When the faculties of perception and reflection cease to guide the will, man is a mere animal of blind impulses, mad or foolish, lion or monkey, in accordance with the attributes of his lower nature. Uncertain memory or bewilderment, suspense of caution when reason is off guard, wandering of thought or imagination away from the business in hand, forgetfulness of things to be done at a precise time, neglect of engagements, positive duties and responsibilities, becoming the sport of every cheat, buying what he does not want at any price and selling what he should keep at any sacrifice, these are among the daily consequences of even moderate drinking.

We read daily of railroad collisions, there should be none; we have watches that keep time accurately; we know exactly the distance between one station and another; we know exactly the rate at which a train runs between stations; the exact time occupied; we have a telegraph for one station to tell another the exact moment when one train arrives and another departs; we know exactly what train is upon the road. With this exact knowledge there never could be two trains meeting on one track from opposite directions, or one train running

into another, between two stations, unless there was negligence somewhere, and there is no cause more probable than the tippling of somebody; and to the same cause may be attributed the irregularities of switchmen.

We have very perfect charts for navigation, on which rocks and reefs are marked; we have light-houses and buoys; the gradual slope of the bottom of the ocean from the land outward is well understood, by which distance from shore may be estimated by simply "throwing the lead," and yet we have shipwrecks in fair weather, nd we cannot doubt that a great cause of negligence or suspense of caution on land is a frequent cause upon the water

As danger from the insane is not in the vicious, who are confined, but in the doubtful who are at large, so the danger of drink is not in the paralysed "drunk," but in the active "half-drunk," whose arms and legs may move naturally while the brain is whirling from the fumes of recent drams.

The man who drives horses or locomotives, the engineer who controls steam-power, the switchman, the pilot, the steersman, the director of costly mechanism, the worker in the shop or manufactory, the agent of trade in any and every branch, though apparently in working order, may be laboring under mad volitions in the unseen brain that at any moment may endanger or destroy life, business

operations or property of a money value, that summed up would add frightfully to the cost of our yearly drink bill. Thousands of dollars are daily lost in machinery by the negligence or displacement of a drinking man, and thousands of days' labor are lost to the working-men before the damage or derangement can be repaired, or where the drinking of one or two in a "gang" or "team" stops or deranges the work of all the rest.

The gambler keeps sober while his victim is drinking, and it is assumed that the "bidding" at an auction of 50 acres of pasture land, divided on paper for the occasion into building lots, but which is to remain pasture-land for at least a century to come, will be much enlivened by a previous champagne lunch.

The "pigeon" of the stock-market, who becomes a "lame duck," is usually one of the light-headed who see certainty in chances through the medium of a dram.

How can it be otherwise when caution, that most sensitive faculty of self-preservation, the watchman of our surroundings and the sentry that gives the alarm, is lulled to sleep or seduced from its post, leaving man exposed to the inroads of every foe; and when that great commander, the will, that controls every organ of volition, at first roused by the irritant of alcohol to silly and eccentric evolutions, is reduced by the sedative of alcohol to

wretched stupor and imbecility, to leave man without a defender.

The pleasure of intoxication from its earliest incipiency is delirium and nothing else, or the painting of things contrary to what they are. Between the delirium of drink and the delirium of the insane, so far as it affects mental disturbances, the difference is slight. The beggar who, in drink, imagines himself a prince, soon awakes to find himself still in his misery, while the imagination of the insane, happy in supposed splendor, is never saddened by a consciousness of the delusion.

If delirium be happiness, if the delusion of drink be short-lived ending in torment, if the delirium of insanity be joyous and continuous, surely the condition of many of our insane should be envied by those who seek happiness in drink.

Were 500 of the inmates of a lunatic asylum turned loose into one enclosure, and there was placed in another enclosure a promiscuous gathering of 500 "impressible" persons, and to these last were administered doses of alcohol from two to sixteen ozs., there would at the end of a few hours be little difference in the mental condition of the two divisions, or the difference would be in favor of the insane, who would appear staid and sober, in comparison with the momentarily excited, as insane persons usually preserve a certain distance from each other, while the tipsy are gregarious, noisy

and quarrelsome.

We no longer bury our money for safety, but "put it out" for profit. Every body's property is in the use or under the control of somebody else, and our monetary existence depends upon the sane and judicious management of multifarious workers who are virtually our agents.

In the days of few mails, dependence on rough roads for transportation by land, and upon tide and wind by water, all irregular at times, rendered the movements of trade dilatory, and men could repose and awake again between the acts, but now, when the steamer is certain to a day, the railroad to an hour, every day and every hour bringing in or bearing away, things immense in their proportions, when the mails pour in letters from morning till night, when a telegram may demand action at any minute, when the telephone enables us to converse with others for miles around without moving from our seats, when competition strains every thought, it is requisite that every business-man, merchant or mechanic, and every man employed by him, in every capacity should be clothed in reason and in his right mind, and at any moment be ready to act efficiently on the sudden summons of continuous emergencies, or there must be dislocation and derangement in the perfect, though complicated, arrangements that control the movements of the world's affairs.

MONEY VALUE OF MEN.

Nothing upon earth is so valuable as man, yet we omit this value or money estimate in our statistics of public wealth, and overlook the loss sustained in his destruction. We would shoot a scoundrel who prowled about seeking to put poison into the drink of valuable animals, while we license and protect "good citizens" who sell poisonous drink to our young men, and when some nabob invites them to be poisoned at his dinner-table or at some celebration, we are obsequious in our thanks.

A great writer says that the first consideration of a young man when entering upon life on his own account is to be a good animal. Is it not strange that we seek to improve the bodily stamina of all races of animals except the human race. To the individual as to the State, health is wealth.

When men were merchandise they had a chattel value far above that of cattle. Prisoners were the best part of the booty in ancient warfare. Wealthy Romans grew more wealthy by buying and selling them. The inhabitants of Constantinople were a great booty to the Turks in 1453, and we have known the price of slaves in our day. I have seen a slave sold at auction as high as $1,700 in Florida. Francesco Moreno told me in Pensacola that he had refused $2,500 for a negro in charge of his cattle,

and that money could not buy him. My cousin, Col. Wentworth Higginson, wrote me that a sergeant in his colored regiment during the war had been valued at a price far higher than this when a slave.

The 18,000 children who died last year in the Dominion, under one year, cost a great deal during their short existence, and to alcohol from the breasts of their mothers, or administered in medicines, much of the loss must be attributed. The mortality up to the age of 21 is very great. All the money spent in the feeding, clothing and schooling by parents for children up to this age is enormous. Every death is the same as so much capital thrown away. Every measure that diminishes the death-rate is a cash gain. There are in the Dominion 1,000,000 males between the ages of 16 and 51, who would not be at all complimented if we valued their labor or services at an average of less than $1.00 per working-day, or $300 per year, which would represent a capital of $5,000 at 6 p.c., making the value of the whole 5,000,000,000 of dollars. This is the outside figure, but when people substract all they please for the death-rate and all contingencies, the absolute money value of a million of men exceeds ordinary comprehension. At the soldier's pay of sixpence per day or thereabouts, the capital would be nearly one billion dollars, or one-fourth of the National Debt of Great Britain.

If, as established by proximates of Insurance Companies, the death-rate of this million would be from ten to fifteen for every thousand, or a total of 10,000 to 15,000, and allowing the deaths of abstainers and non-abstainers from liquors to stand at a heavy percentage, supposing them all to be insurable lives, the excess of deaths attributable to strong drink would represent a loss in the outside estimate of many millions. The estimate here given at random may be reduced to much exactness by any one who would enter upon the calculation.

We are straining at every point to bring immigrants into the Dominion, and particularly want young men as highest in point of value to swell the productions of the country and not to enrich liquor-sellers.

In the old wars between England and France on this continent, while it cost each country £100 for every soldier sent out, the other side could kill him at the cost of a ball cartridge after he got here. The experiment of importing young men for the benefit of liquor-sellers might be measured by the same scale. Never in the history of the world was the value of men in a commercial sense so great as it is now. The wealth of a country is not in its houses and lands, but in its people and the strength of its people; and the strength of the people is not in their numbers, but in their health and the number of hours of sustained labor that they can con-

tribute for public good, which the use of alcohol sadly diminishes.

Dr. Clarke, one of the physicians to the Queen, stated, in a recent lecture, that 70 persons out of every 100 in a London Hospital under his charge had been addicted to the use of alcohol. The returns of the Registrar-General of England and Wales enumerates as causes of death nearly fifty which are attributable to the same cause, and until we have reports more definite than we now have, it may be safe to assume that out of 16,000 deaths of men annually in the Dominion, more than 4,000 may be attributed to diseases produced by alcohol, and the additional loss of capital in loss of hours, if it could be summed up, would be very many millions of dollars annually.

Should there be hereafter a condition of society when the relations between virtue and vice are less cordial, and the toleration of shams less fashionable than in our boasted 19th century, men may wonder how our liquor slaughter could be permitted, and if reminded that the moral and delicate of enlightened Rome thronged the amphitheatres to witness fellow-creatures torn to pieces by wild beasts or slain in deadly combats, he would say these victims were enemies, prisoners of war, spared in the general execution of their countrymen, for public spectacles, while our Christian civilization condemns fathers and brothers, sons and dearest friends to as certain

destruction not as a delight to anybody but only to expand and make certain what those of the future will consider the vile profit of an infamous trade.

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EXCUSES FOR DRINKING.

Whenever or wherever there is a propensity for indulgence in any folly, extravagance or stupidity, there is always ready a deluge of excuses for its exercise. Men find excuses for strong drink in its customary use and in the sanction of past ages, overlooking that this use is one of the vestiges of savagery found in connection with our imperfect civilization which, before the lights of our own day, is shrinking away into dark places.

Men ask, "Why should I abstain?" and say they have drank strong liquors all their lives with pleasure and without harm, unmindful that in every twelve moderate drinkers one soon dies a drunkard, and that they are surrounded by the ghosts of former companions, who used the same argument, or the living spectres of others sinking fast into the grave. They say, "let every man be his own judge of what he can bear," forgetful that this ensnaring test has led but to one result from the days of Noah. There has been no ascending scale in the power of judgment. Men misjudge their strength to-day as they always have misjudged. They say, "I can

drink or let it alone when it hurts me." If possessed of this power, why drink when the "hurt" is visible.

They say it is social in rousing company from dulness and stupidity, forgetful of the small gain in stirring up sound reason into frothy declamation. They say drinking promotes "good fellowship," forgetting that it may end in quarrels and broken heads. They say it is uncivil to refuse in company that of which others partake. Would it be uncivil to refuse cold potatoes or bad oysters?

They drink to raise despondency, and are crushed by its weight as it sinks back, forgetful that misfortune must be met by courage and the calling out of natural forces that drink makes powerless.

Every event outside the routine of duty which brings two or more men together, from a small talk up to a grand celebration, is made an occasion for drinking, and excuses are found in things most opposite. Men drink to warm their blood, and they drink to cool it. They drink to create an appetite, and they drink to assuage its cravings. They drink to aid digestion, and they drink to arrest digestion. They drink to nerve for action, and they drink to sleep from action. They drink for company's sake, and they drink for want of company. "Wine is a mocker, and he who is deceived thereby is not wise." The manlier part would be for men to say, "We like strong drink

and cannot resist temptation when it comes in our way." And why should they not like it, when every art and artifice are called in to make it attractive, and alcohol, that supplies the intoxicating element, is one of the irritant poisons that rouse at the offset a pleasurable excitement that craves for more.

With such vain and shallow subterfuges, men plant cancers to spread and knaw upon their vitals until death terminates the agony. With them "home," which is not four walls roofed over and divided into apartments, but the family sanctuary of harmonious order, to be a relief, refuge and protection against the storms and passions of the outside world, is transformed into a pandemonium. With them the once strong, high-minded businessman is brought down to imbecility, tottering in vagrancy through our streets. With them the stout, kindly-nurtured and costly-educated young man is sunk to a drivelling incubus upon the compassion of relatives or former friends, or figures in the police court as a ruffian or pilferer. With them woman, our ideal of perfection, young or old, is hurled from pinnacles of virtue to degredation so foul that in comparison with them we deem imprisonment in charity's refuge for the insane to be a mercy. With them the catalogue of crime, disease and death is so far magnified that the figures of public statistics excite incredulity to what the

more exact and comprehensive investigation will prove to be short of the truth.

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MOVEMENTS OF TEMPERANCE.

The liquor-trade, branded like Cain from the beginning, has always appeared within the shadow of the Criminal Code. Others have had their free course, but the liquor-trade, like a ticket-of-leave-man, has been always under the surveillance of police authorities.

In British Acts of Parliament since the discovery of America, there have been 400 enactments for its regulation, and forward and back movements on the liquor-question come into continued discussion in lesgislative assemblies.

In 1651 the town of East Hampton, Long Island, prohibited the sale of liquors except by persons specially deputed. In 1788 New York adopted a law regulating the sale of liquors in taverns.

In 1790 a volume of sermons on temperance, supposed to have been written by Dr. Rush, were published in Philadelphia. In 1790 the College of Physicians in Philadelphia, in a memorial against distilled liquors, to the U. S. Government, declared them most deleterious to the health and welfare of the people.

In 1794 Dr. Rush issued his "Medical Inquiries" into the effects of ardent spirits, and announced abstinence as the basis of all reform, and in 1805 he reproduced his views in a pamphlet, widely circulated.

In 1808 the first Temperance Society was formed in Moreau, Saratoga County, N. Y.

In 1818–19 the authorities of the State of New York largely reduced the number of retail grog-shops, but the great reform only commenced in 1826, when temperance societies, beginning in Boston, spread rapidly through the United States and Canada, and found their way to England, at first opposed to spirits only, but soon pledged to total abstinence, and temperance organizations, in a shadow of free-masonry, under various names were organized in all quarters. In 1832 the spirit ration of the U. S. Army was abolished, and substituted by sugar and coffee. In 1833 the Presbyterian Synod at Albany, N.Y., declared that the traffic in ardent spirits was an immorality.

In 1834 Georgia expelled the traffic in ardent spirits from the seat of her university. The question had now grown to political importance, to be discussed in the Legislatures of various States. Something like the Poor-Law of England continued in force in the six North-Eastern States called New England, where each town is obliged to maintain its

utterly destitute, who have a claim by birth or long residence.

Attention being called, it was soon observed that the main cause of pauperism was that drinking-men, having spent their summer wages in the grog-shop, left their families to be supported by the town during the winter, and "down with the grog-shops" became the popular cry, which has never ceased.*

Up to 1850, license or no license was bandied in the different legislatures with varying success, but with increasing majorities against the liquor-trade. In 1851 the Prohibitory Law, associated with the name of Neal Dow, and since known to the world as the "Maine Law," was passed by a two-thirds majority of the Legislature of that State, and has continued to this day strong in the judgment of the people. Like the revenue laws, it does not prevent smuggling, and like the ten commandments, it has been wantonly broken every day, but, like them, has been an immense power of general benefit and common observance. A poor and rather squalid State has in thirty years become rich and comfortable, though men, who would steal chickens rather

* NOTE.—There cannot be greater utterance of nonsense than the continued assertion that legal suppression does not diminish the sale of liquor in these States, when everybody knows that every ratepayer is self-interested, and, having power in his hand, never ceases to use it in keeping liquor away from large classes, where the cost comes directly out of his own pocket,

than do without them, continue to get "drinks" where they can.

In the fifteen years following 1851, eleven States adopted prohibitory liquor laws, and there has continued a jumble of legislation backward and forward in many others, where good purposes have been as often thwarted by the zeal, without knowledge, of advocates as by the self-interest of opponents.

In Canada the various Provinces have been agitated much in the same manner, with the same minimum of result.

A County "Local Option Act," called the "Dunkin Act," was in force in the two Canadas before the Confederation, and continues law, and we have on the Statute Book the "Dominion Temperance Law" of 1878, which gives to Counties local option for the suppression of selling "by the drink." But comparatively few countries in the Dominion have availed themselves of their liberty.

At the last session of the Dominion Parliament a general law was enacted regulating the license system, or conditions under which intoxicating drinks can be sold by the glass or small quantity, which came into operation on the first of January. How the clashing of jurisdiction between Province and Dominion, and what are to be its effects on the liquor trade, promises agitation in the future.

The resolute of to-day see nothing to depress in the discomfitures of the past, but everything to hope from the immense ascendancy of morality gained in a half-century over bad habits and false opinions, entailed to us from the earliest generations, the enticement of appetite, an attribute of our lower nature, the great gain that a large class obtains daily by stimulating this appetite, and the immense cash capital invested in carrying on and forcing the trade, with all their accompanying self-interest. To prevail against all this by the philanthropic exertions of a few, increasing to many, carrying a warfare into their legislatures with no incentive but the good of others, opposed by unions of self-interest working for itself, has been a great triumph.

Enthusiasm, we must remember, is always sporadic; like the sea-wave, it rolls in to carry all before it and then retires, but unfortunately, while the sea renews its attacks forthwith, enthusiam sleeps, till roused by a storm, while that which it attacks rebuilds its defences and augments in strength. The opposition of the victims of drink has been more discouraging than the bold front of the victimizers.

The zealous abstainer has been reminded that the fox, who lost his tail in the trap, failed to convince his friends that long tails had gone out of fashion. The serious have been told that they opposed drink-

ing, not because it did the people harm, but because it gave them pleasure. The parson has been told that future punishment is a long way off, and the economist that a night's frolic was a "thing of joy certain," and the prospect of forbearance being rewarded with health and wealth thirty years hence an uncertain equivalent.

But for all this the world has been an immense gainer by the agitation of the temperance question, confused, erratic, ill-directed, and some might say stupidly as it has been conducted. Evidently there has been a moral upheaving which has raised the level of our social plane.

If temperance has indulged in some nonsense, its opponents have uttered much more. They talk of restricting a man's liberty, overlooking the fact that this is the hinge on which civilization turns, and forgetting that universal law demands the removal of a nuisance, even though it be a grog-shop.

They pompously announce that no man can be made sober by law, when nobody ever assumed the contrary. They demand "moral suasion," when moral suasion has been the constant, and for the most part, the only weapon of temperance for a half-century. They say, in contradiction to experience in every other trade, that more liquor is sold under restriction than when free, which is equivalent to saying that three-fourths of mankind are sneaks, who delight in law-breaking and creeping

stealthily into dirty holes for vicious purposes. Dealers foretell that liquor sold under restriction will be "spurious," and forget that little they now sell is real, unless it be plain whiskey.

Time works wonders. In our day they are rapidly developed. The realities of the temperance question are becoming distinct to all, and in all action for and against hereafter we may expect that men will act understandingly.

The enterprise of teetotalism or total abstinence, as an advanced idea in sanitary reform and social progress, thus commenced about a half-century ago by a vast experiment, in opposition to a vitiated appetite inherited through generations from savage ancestry, sanctioned by the usage of all nations in times that are past, consecrated by universal custom in our own, and interwoven with the greed of commerce, and with every condition of modern life from Dives to Lazarus, in sickness and in health, in sorrow or in joy.

The triumph of the experimentalists against such opposing forces has been wonderful for a time so short; their assertions have become scientific facts. Strong drink, once deemed to be like salt, a household necessity, is now admitted to be a household curse, only waiting, like any bad tenant, for some process of ejectment. We no longer beseech the strong drinker to compassionate the weak, but we hurl defiance, denouncing bad example, especially

in high places, as a crime against the welfare of the nation, and moderation as a game of hazard, subjecting the transgressor to the direct penalties of nature's law. Man seems to have found a remedy for the ills of man in a preventive of the ills.

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CONCLUSION.

All intoxicating drinks are simply a poison diluted with water, colored to seduce the eye, and flavored to seduce the appetite.

This poison is alcohol, differing from strychnine, opium or other commonly-recognized poisons only in the matter of quantity, while it requires but an infinitesimal dose of strychnine to kill a man, it requires from 12 to 15 ozs. of alcohol. There is no difference in the principle of action, but only expansion in quantity. As diluted strychnine is used without causing visible danger, so may diluted alcohol.

The moderate drinker may use 2 ozs. daily, which would spread the deadly dose in time over a whole week. If taken in watered spirit or strong wine, he will have consumed with it 45 ozs. water, or more than a quart. If in light wine, he will have taken nearly 3 quarts of water. If in beer, 6 quarts. This alcohol is the product of fermentation, that

putrefies and destroys the material of which it is the outgrowth, leaving it mixed or spread throughout the water, not affected by fermentation, in volume not exceeding 17 p.c., so that in drinking fermented liquors from 83 to 99 pints of water must be drank with every 100 pints.

Distillation is the process by which this alcohol is eliminated or separated from surrounding water, or by which it may be extracted directly during the fermentation of grain or saccharine matter, and then diluted again with water to any named strength, and the drinker may use it with only 10 parts water, as in absinthe, down to from 75 to 90 parts in brandy and water.

Thus the whole question of use and abuse is not in the name or quality of the liquor taken, but how much alcohol does a man in using it consume in 24 hours.

Nature provides the right means to ends, which cannot be superseded. Man comes into this world's sea of trouble armed with a manhood in energies of will and resolution, counselled by thought, to oppose and end them. To man in his strength, griefs and care are but passing shadows. Pleasures are enjoyed to their highest rightful limit and all impediments in the pathway to happiness are pushed aside, trodden down or overthrown. He who in his weakness calls upon alcohol for help, and not on his own natural resources, is like one of those emascu-

lated communities of old, who, calling upon barbarians as auxiliaries for defence soon found themselves despoiled and enslaved by their ally. Drinking usages are a vestige of barbarism.

The instinct to secure pleasure and avoid pain is common to all animated nature. The beast or the savage cannot rise above animal gratification, but man has in his intellect nobler powers enabling him to avoid pains far more intense, and enjoy pleasures higher and more enduring. To sell one's manhood for momentary gratification is worse than the sale of Esau of a birthright for a mess of lentils.

If we could subtract from all the sick in our hospitals, all whose infirmities have their cause in alcohol, there would be many empty beds. If we could subtract from all the insane in our asylums, all whose insanity may be traced to alcohol used by themselves or their progenitors, the Supply Bill of Parliament would be much diminished.

If we could subtract from all the prisoners in our jails and penitentiaries, all who are sent there by alcohol, men would ask why such immense structures were ever built. If we could substract from the daily business of our Recorder's Court and Police Court, all the cases due directly to alcohol, one-half of the police force might be disbanded.

If we could deduct from all the shipwrecks, all that are occasioned by sitting too long at the table or taking a drink too much, forgetfulness or

neglects of caution, insurance rates would be decreased by a vast percentage. If we could deduct from all railroad accidents, with their destruction of life and property, all that are occasioned by men acting under the the impulses of alcohol, with its negligences instead of the calculations and cautions of reason, there might be more dividends to shareholders and happiness to thousands of families now made desolate. "Whenever it is known," said a shrewd Scotchman," that a man has a thoosan' punds in cash there are a thoosan' dee'ils scheming to get it away from him." The first operation is asking him to "take a drink."

If from all the bad bargains and bad speculations in a business man's life he could deduct those inspired by the delusion of alcohol, he might leave wealth to his family. If in every household, rich or poor, we could subtract from all the fathers and brothers, all those that alcohol reduced to brutality, poverty and ignominy, how happy the world would be. If from all the widows and orphans that the charitable seek out in the garrets and back-yards of bye-streets, we could subtrac all that have been so reduced by a natural protector's addiction to alcohol, there would be sunshine where now all is darkness.

If we could subtract the results of alcohol from all the explosions and damage to machinery, all the days lost to workmen, and all the loss to those who

labor, from the irregular habits of their comrades, there would be more security in invested capital, and thousands of families shivering in destitution through long winters would be comfortable.

We are now told that drugs cure nobody. They only remove obstructions. Nothing creates so many obstructions to the proper working of the human system as alcohol. Let moderate drinkers beware!

In the earliest writings of the Hindoos and Egyptians, down through our Scriptures to Greeks and Romans and generations following, there have been continuous denunciations of strong drink, and prohibition of its use by princes, priests, teachers and all invested with responsibilities.

In olden days the multitude were mere cattle, to be driven by their superiors. In our stage of civilization every man in the multitude is responsible to his neighbor and to himself for every action tending to weal or woe, and what Moses forbid to the priests about to minister at the altar of sacrifice, he should consider forbidden at the altar of every household, however humble.

As a mere question of profit and loss, is not every possible pleasure or benefit that can be estimated by those who promote the common use of alcohol too dearly purchased by the overwhelming magnitude of the evil to which it tends.

There is an awakening; the physician and the

scientist have told us that alcohol is not needful for the health or strength of man, and from its known composition must be hurtful.

Society is rising to higher aims. Habits of sustained labor, an ambition for advancement to higher position and increased pleasure in intellectual researches and perceptions of the beautiful are weaning men from the grovelling and degrading. We now see, as from a mountain, a promised land of happiness spread before us to be enjoyed, freed from alcohol, by those who are to follow, and should ask "why defer the occupation?" Is there no Joshua to lead us to immediate conquest and scatter the idolaters of drink-worship, with their altars and their priesthood?

The sum total of the whole matter is not what strong drink was, or what it did in other times or other places, or other conditions of the earth's surface, or atmosphere, or other conditions under which man lived, moved and had his being, but a simple, thoughtful and practical consideration of what strong drink now is, and what it now does to ourselves at the end of this extolled 19th century, by marring, mutilating and torturing the life of man in this goodly land, apportioned by a beneficent Providence to us for our dwelling-place.

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